Reliability Statistics

Statistical Release

8 August 2013

Department for Transport

Reliability of journeys on Highways Agency's motorway and 'A' road network, England: April to June 2013

This statistical release presents information about the reliability of journeys on motorways and 'A' roads managed by the Highways Agency, known as the strategic road network, between April and June 2013.

These strategically important roads account for around two per cent of all roads in England, but carry around a third of all traffic.

The reliability of journeys on the Highways Agency's roads is measured by the percentage of 'journeys' that are 'on time', comparing journey times with historical data for individual sections of road.

The data are based on journey times estimated using in-vehicle Global Positioning Systems (GPS) and flows estimated using automatic traffic counters.

This reliability measure is one of a number of indicators in the Department's 2012-2015 Business Plan.

This month we have published reliability statistics for individual road sections on the Highways Agency's network. These statistics are currently 'badged' as 'Experimental' and are undergoing evaluation. We are keen to receive feedback on these new statistics, please contact us using the details provided on this cover page.

The key findings from this statistical release include:

- In the year ending June 2013, provisional data show that 77.2 per cent of journeys on the Highways Agency managed network were 'on time'. This is a 0.1 percentage point increase on the year ending March 2013.
- The percentage of journeys 'on time' was higher in April 2013 (up 1.6 percentage points), lower in May 2013 (down 2.7 percentage points) and, higher in June 2013 (provisional data) (up 1.8 percentage points) compared to the same months in 2012.

FURTHER INFORMATION

Responsible Statistician:
Jay Symonds
020 7944 6579
congestion.stats@dft.gsi.gov.uk

Media Enquiries:
020 7944 3066

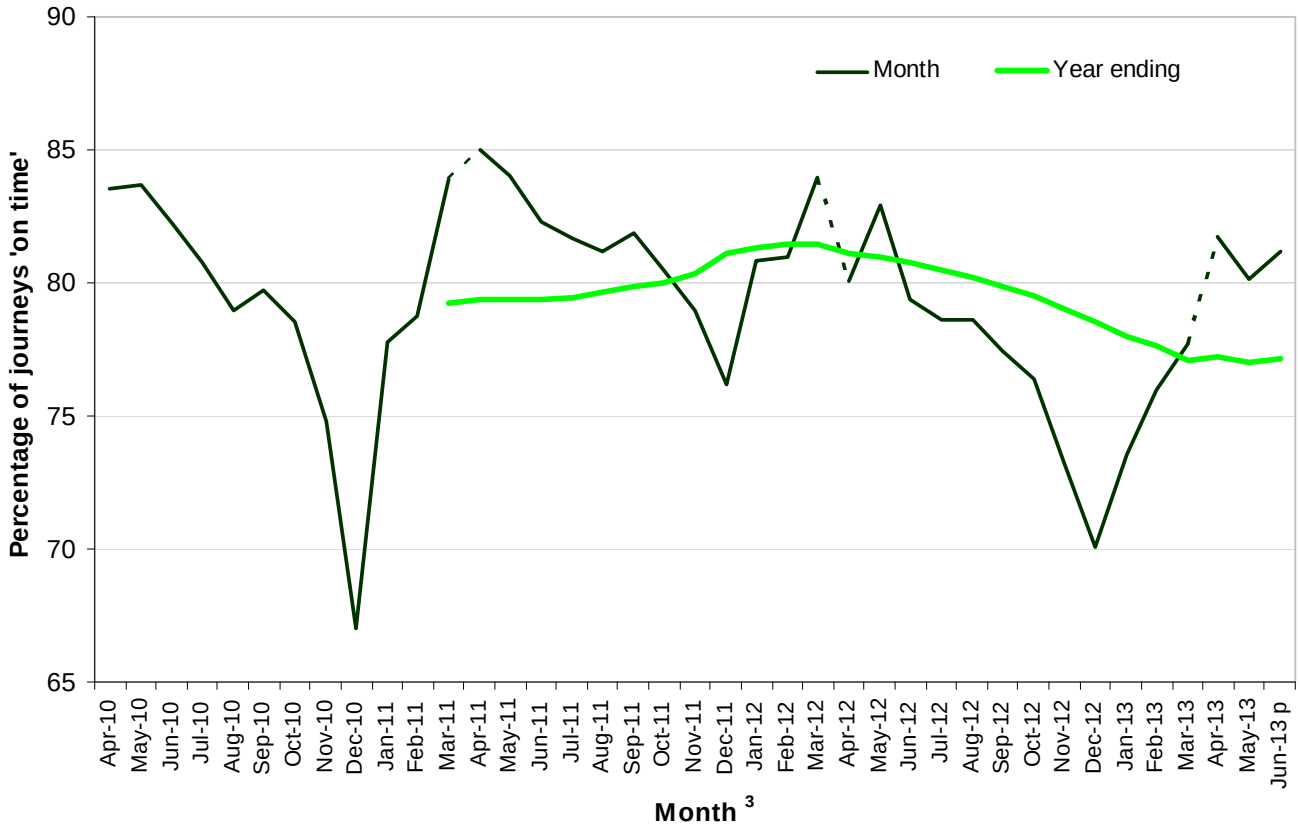
1. National overview of reliability

The reliability of journeys on the Highways Agency's roads is measured by the percentage of 'journeys' that are 'on time', where:

- A 'journey' represents travel between adjacent major junctions on the network.
- An 'on time journey' is defined as one which is completed within a set reference time, based on historic data on that particular section of road.

- Provisional data show that 77.2 per cent of journeys on the Highways Agency managed network between July 2012 and June 2013 were 'on time'. This is a 0.1 percentage point increase on the year ending March 2013.
- The percentage of journeys 'on time' was 81.7 per cent during April 2013 (up 1.6 percentage points from April 2012), 80.2 per cent during May 2013 (down 2.7 percentage points from May 2012) and 81.2 per cent during June 2013 (provisional data) (up 1.8 percentage points from June 2012).

Percentage of journeys [1] on Highways Agency motorways and 'A' roads that are 'on time' [2]: monthly and annual averages from 2010/11 (Reliability web table CGN0104)



1. 'Journeys' are defined as travel between adjacent junctions on the network.
2. An 'on time journey' is defined as one completed within a set reference time, based on historic data on that section of road.
3. Reference times are updated for the April data each year. Further information on the impact of updating reference times can be found in section 3 of this release.
4. Figures in this chart have not been seasonally adjusted.
5. Data to December 2012 were revised in March 2013 as a result of the implementation of planned methodology changes

p = provisional

[The footnotes above apply to all charts presented in this release.]

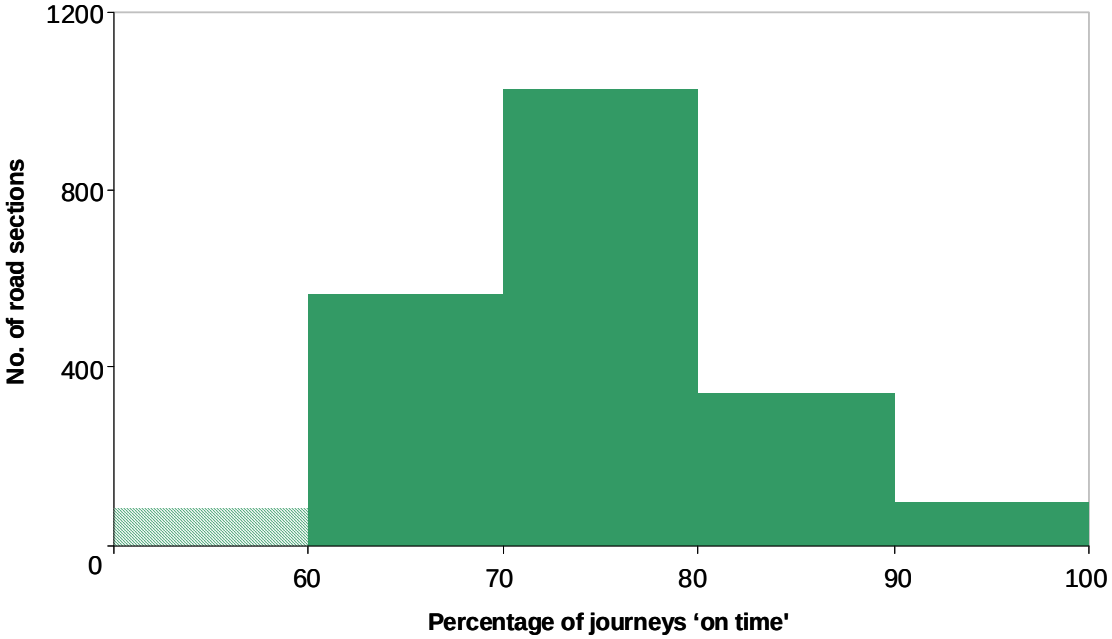
- The annual reliability measure consistently increased from the year ending March 2011 up to March 2012, but decreased in each of the following twelve months to March 2013. The changes in reliability over this period are believed to be predominantly due to changes in rainfall and periods of heavy snowfall relative to the previous year.

- The small increases in the measure for the year ending April 2013 and the year ending June 2013 are believed to relate to lower levels of rainfall compared to the same months of 2012. Recent changes in reliability may also be affected by increases in traffic on motorways and rural 'A' roads. It should also be noted that estimates of reliability from April 2013 are calculated using updated reference journey times, based predominantly on historic journey time data from 2012. Further information on the reference journey times used can be found in section 3 of this release.

2. Experimental Statistics: Sub-national reliability statistics

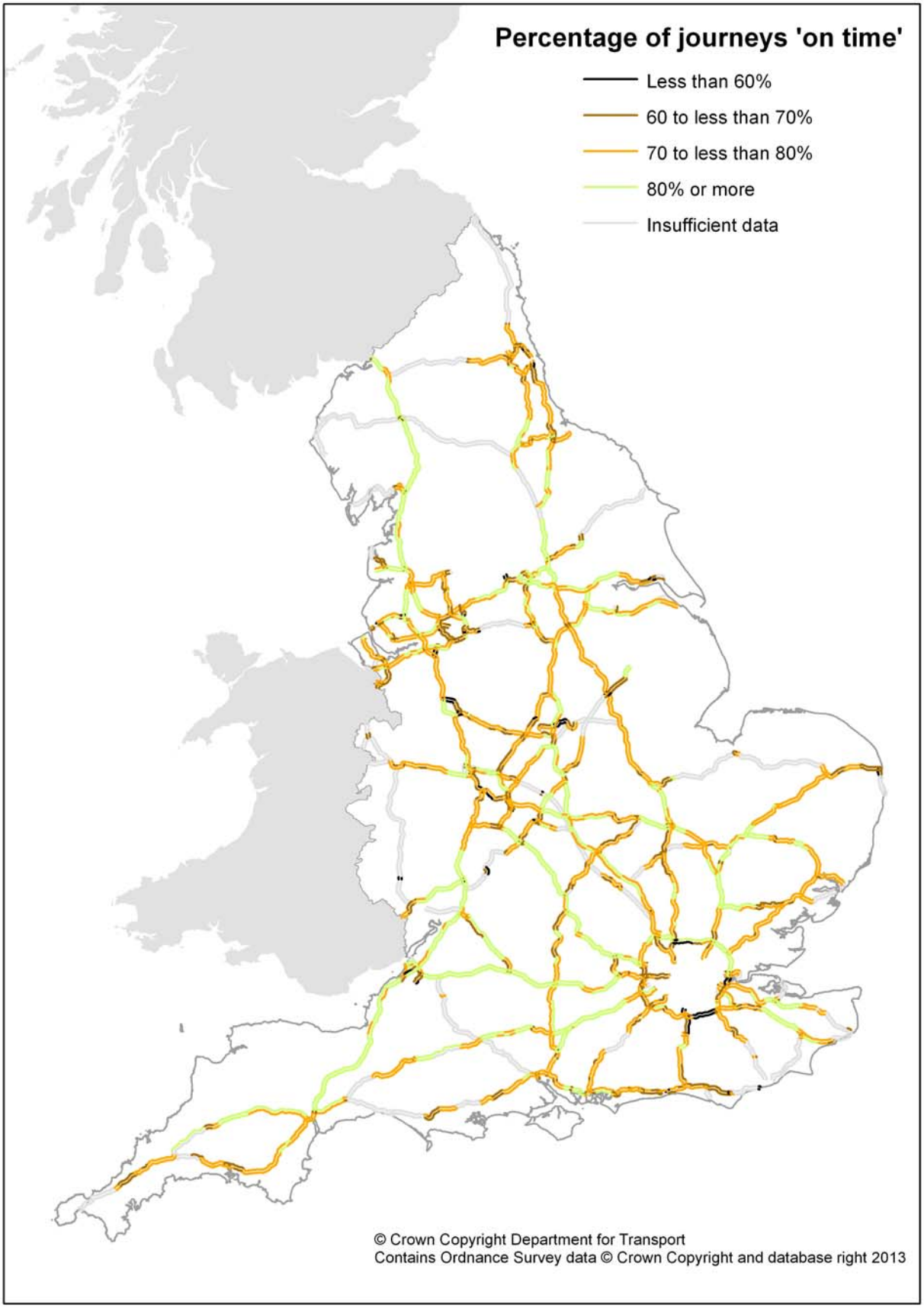
This month we have published reliability statistics for individual road sections on the Highways Agency's network. These statistics are currently 'badged' as 'Experimental' and are undergoing evaluation. The analyses presented below are examples of how we can present the statistics for individual road sections. We are keen to receive feedback on these new statistics and supporting analyses. This will help us to determine their value and to inform whether the analyses presented below are published in future releases. Please contact us using the details provided on the cover page of this release.

Percentage of journeys on Highways Agency's motorways and 'A' roads that are 'on time': number of road sections, year ending June 2013[p]



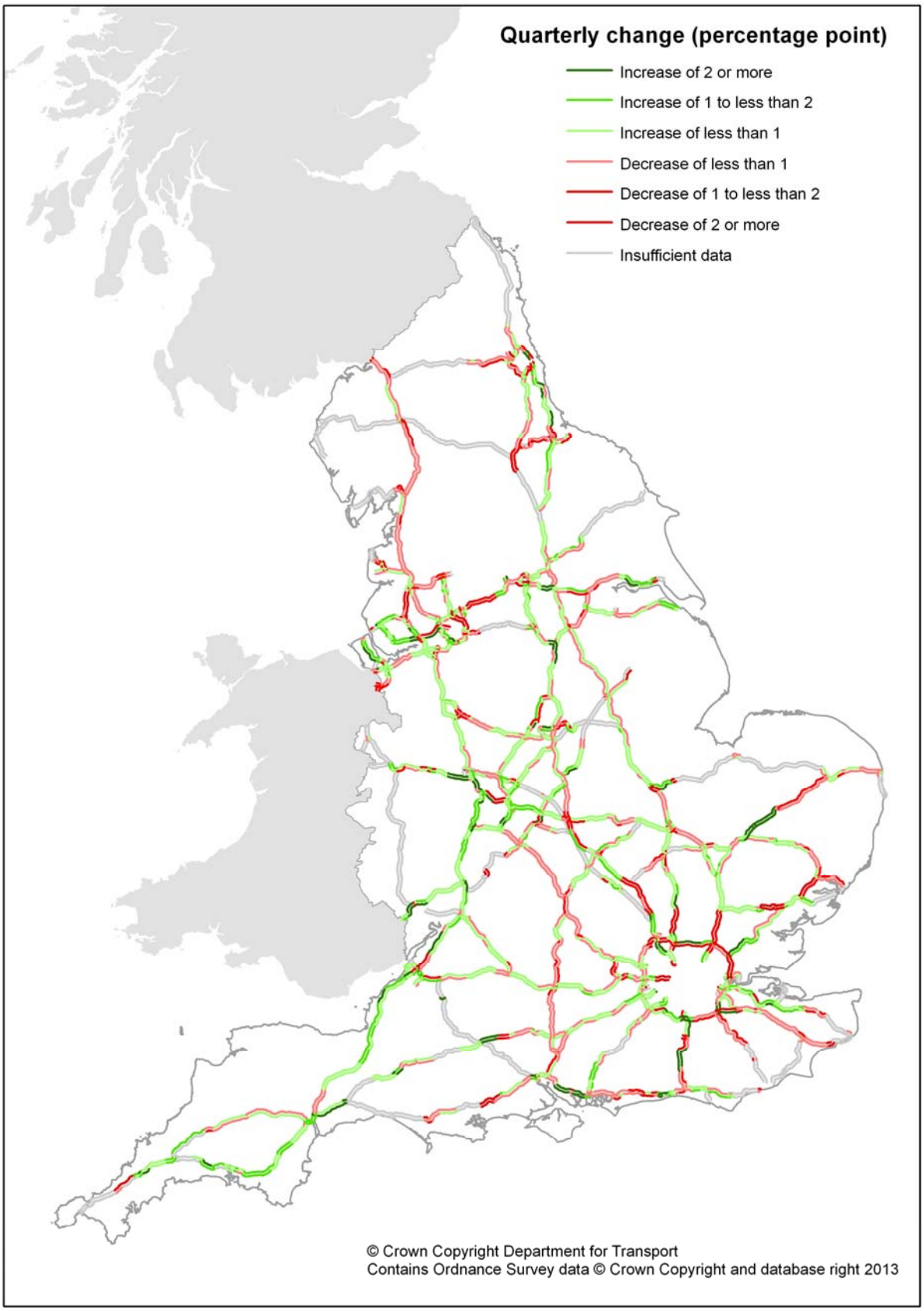
The 'hashed' area of the chart represents the number of road sections where the percentage of journeys 'on time' was less than 60 per cent. Road sections with insufficient data have been excluded.
p = provisional

Percentage of journeys on Highways Agency's motorways and 'A' roads that are 'on time': by individual road section, year ending June 2013[p]



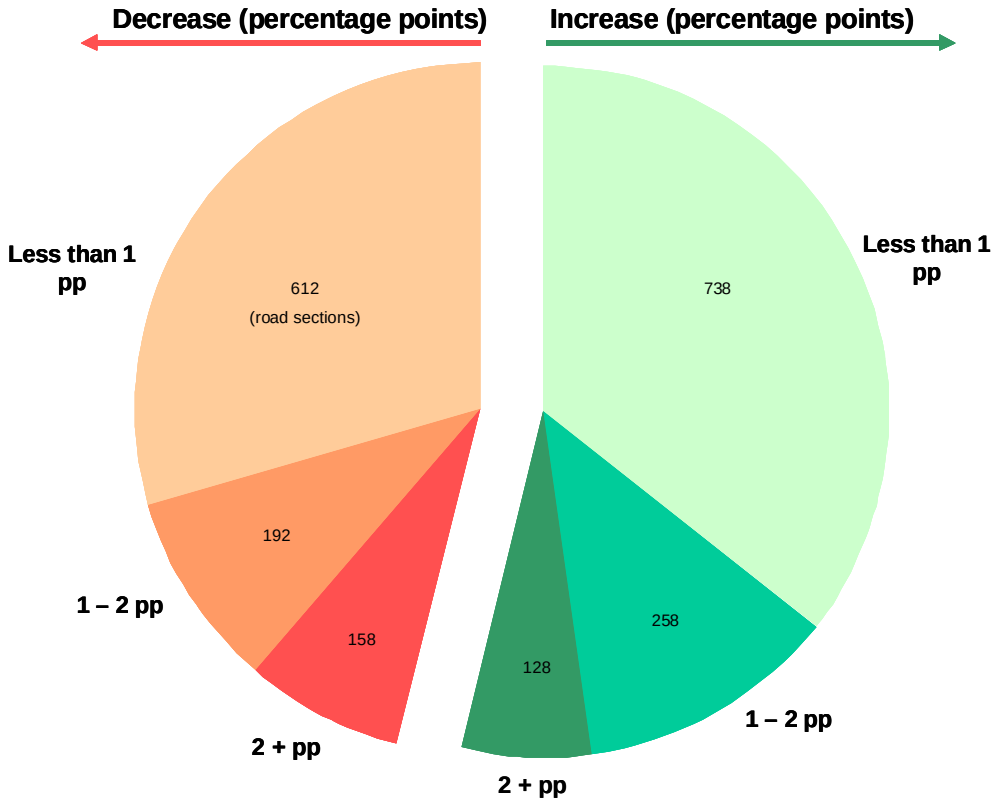
Insufficient data - Individual road sections where the level of national imputation is high or corresponding references are of poor quality.
If you require a copy of this map in different colours please contact the congestion statistics team.
p = provisional

Percentage of journeys on Highways Agency's motorways and 'A' roads that are 'on time': by individual road section, percentage point change from year ending March 2013 to year ending June 2013 [p]



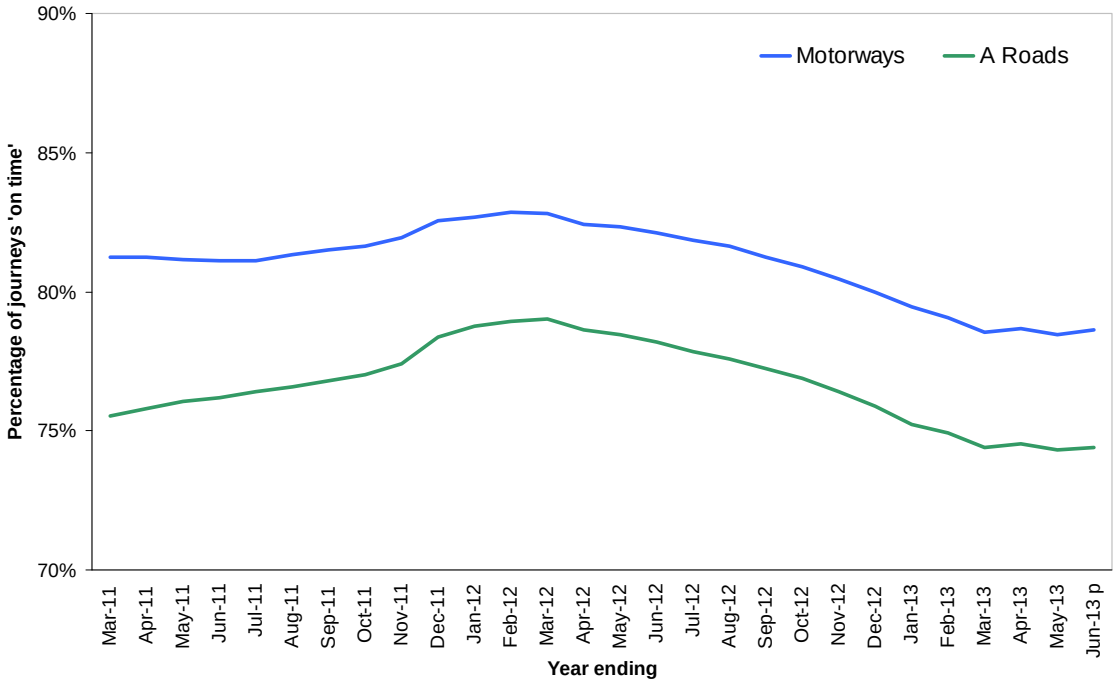
Insufficient data - Individual road sections where the level of national imputation is high or corresponding references are of poor quality.
If you require a copy of this map in different colours please contact the congestion statistics team.
p = provisional

Percentage of journeys on Highways Agency's motorways and 'A' roads that are 'on time': number of road sections, percentage point change from year ending March 2013 to year ending June 2013 [p]



Road sections with insufficient data have been excluded.
p = provisional

Percentage of journeys on the Highways Agency's motorways and 'A' roads that are 'on time': by road type, annual averages from 2010/11



p = provisional

3. Strengths and weaknesses of the data

As a measure that is based on comparing current journey times on the network to road users' previous experiences on similar types and times of day, these statistics are very useful in monitoring how predictable journey times on the network are. However, they do not directly measure whether congestion, in a physical sense, has improved or deteriorated over time.

For example, journeys on a particular stretch of road could be very slow moving at certain times of the day with lots of congestion evident. However, if the effects of this congestion were fairly predictable and journey times were always of, or around, a similar value, these journeys would be considered reliable. Similarly, journeys on another stretch of road could be fairly fast moving on average but equally would be considered unreliable if conditions varied wildly from day to day, with some journeys experiencing very little congestion while others were affected severely.

The statistics used to monitor journey time reliability on Highways Agency's motorway and 'A' road network are compiled from data from in-vehicle GPS and flows estimated using automatic traffic counters.

Real, observed, journey time data with a good temporal match are used to estimate reliability for each section of road. Where no data of this quality are available for a particular section of road or time period, reliability levels are imputed. Imputation is based on corresponding day-time and night-time averages for individual sections of road in each month where there are sufficient data. Where there are insufficient data for individual road sections, national day-time and night-time averages for that month are used to impute reliability levels.

13.8 per cent of the data used to estimate journey time reliability in June 2013 required imputation using either national or individual road section averages. This compares to 14.4 per cent of data requiring imputation in June 2012. A monthly breakdown of the amount of data requiring imputation is available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51128/ha-data-quality.xls

Imputation levels are higher following the implementation of the new methodology in March 2013. This is because we are now only using the GPS source to estimate journey times and we no longer use journey time estimates based on a single vehicle observation. However, imputed estimates will now be of a higher quality, because of changes to imputation methods. Imputed estimates will now generally be predominantly based on performance for individual road sections and months. National level estimates will continue to be used to impute for missing values on road sections with very little observed data.

Reference journey times are updated on an annual basis, for the start of each financial year. This ensures that reliability levels are relative to the latest conditions experienced on each part of the network (the majority of reference journey times are based on journey time data from the previous year). Differences observed when comparing months in different financial years will partly reflect a

change relating to the updated references used. The impact of reference changes on the national reliability measure have previously been up to around +/- 1 percentage points for comparisons between individual months in consecutive financial years. However, the impact of the recent reference update used to estimate reliability for April 2013 is believed to be greater than this, leading to a change of around 1.6 percentage points in national performance. This will be due in part to the slightly slower reference journey times in 2012, resulting from the unusual weather that year (2012 was the second wettest year since records began).

The estimates of journey reliability for individual road sections may reflect the impact of a number of factors including roadworks. Where the time and location of roadworks are published in advance at: http://www.highways.gov.uk/traffic-information/traffic-information-services/scheduled-roadworks/ the estimated impact of those works will be taken into account in the reliability estimates provided.

Reliability data for individual road sections are not published where the level of national imputation used in that estimate is greater than 20 per cent or where corresponding references are of very poor quality.

None of the statistics in this series are seasonally adjusted.

The final figure for reliability on the Highways Agency managed network during the year ending May 2013 was 77.0 per cent, unchanged from the provisional estimate published last month. The reliability statistics for June 2013 are currently provisional while final checks on the raw data sources underpinning the statistics are carried out. The statistics will be finalised in table CGN0104 and CGN0106 in September 2013, but are unlikely to change from the provisional estimates.

4. Background notes

1. As set out in the March 2013 release, the historic reliability data series to December 2012, shown in the chart on page 2 of this release, was revised as a result of planned methodology changes. These changes were made to address issues of comparability of reliability estimates using different data sources. As a result of the methodology changes, journey times are now estimated using in-vehicle GPS data only. Further information on the methodology changes made, including a chart comparing the revised national monthly series with the previous series can be found in the *Reliability methodology changes Q&A* document at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/140067/methodology-changes-qa-march-2013.pdf

2. The web tables give further detail of the key results presented in this statistical release and statistics on other related topics. They are available here:
https://www.gov.uk/government/organisations/department-for-transport/series/road-congestion-and-reliability-statistics#statistical-data-sets

3. Full guidance on the methods used to compile the reliability statistics presented in this release can be found here:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51127/Methodology_for_calculation_of_reliability_on_Highways_Agency_s_motorway_and__A__road_network.pdf

4. A useful introduction into the Department's congestion and reliability statistics, providing more detail as to what the different statistics measure, how they are published and the ways in which they are used is available here:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51125/An_introduction_into_the_Department_for_Transport_s_congestion_statistics.pdf

5. National Statistics are produced to high professional standards set out in the Code of Practice. They undergo regular quality assurance reviews to ensure they meet customer needs:
http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html

6. In July 2012, the United Kingdom Statistics Authority confirmed the designation of these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the Code of Practice for Official Statistics.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs;
- are well explained and readily accessible;
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest.

The assessment of compliance with the Code of Practice for Official Statistics and subsequent letter confirming the designation of these statistics as National Statistics can be found here:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51139/Assessment_of_compliance_with_the_Code_of_Practice_for_Official_Statistics_-_Statistics_on_Road_Reliability_and_Congestion.pdf

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51140/Letter_of_confirmation_as_National_Statistics.pdf

7. Details of ministers and officials who receive pre-release access to these statistics up to 24 hours before release can be found here:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/51141/Pre-release_access_list_-_Reliability_of_journeys_on_Highways_Agency_s_motorway_and__A__road_network.pdf

8. The frequency of this statistical release is now quarterly. The next release of journey time reliability statistics will be published on 14 November 2013. It will contain provisional information about the reliability of journeys on the Highways Agency's motorway and 'A' road network in the year ending September 2013 as well as the final figures for July and August 2013. We will continue to make our reliability statistics available online on a monthly basis. Provisional figures for July and August 2013 will be published in table CGN0104 on 12 September and 10 October respectively.

5. Request for feedback

We are always keen to receive feedback from users of transport statistics. If you have any comments about how the statistics in this release are presented or analysed, please contact us using the details listed on the first page of this release.